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			ART UNIT 2195	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/783,625

Applicant(s)

CZAJKOWSKI ET AL.

Examiner

ERIC C. WAI

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/ICE)
- Paper No(s)/Mail Date 04/12/2004.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-45 are presented for examination.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The current focus of the Patent Office in regard to statutory inventions under 35 U.S.C. § 101 for method claims and claims that recite a judicial exception (software) is that the claimed invention recite a practical application. Practical application can be provided by a physical transformation or a useful, concrete and tangible result. No physical transformation is recited and additionally, the final result of the claim is binding a computation to an encoding which is not a tangible result because the binding is not utilized in a meaningful way that results in something tangible. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. §101.

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

5. Claims 1-12 are also rejected because the claimed invention, appearing to be comprised of software alone without claiming associated computer hardware required for execution, is not supported by either a specific and substantial asserted utility (i.e., transformation of data) or a well established utility (i.e. a practical application).
6. Claims 24-29 are also rejected for claiming a data structure comprising a mere arrangement of data (i.e. nonfunctional descriptive material). See MPEP 2106.01.
7. Claims 35-41 are also rejected for claiming nonfunctional descriptive material. The computer program product of independent claim 35 only comprises "a resource domain class definition". When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. See MPEP 2106.01.
8. Regarding claims 42-45, even though Applicant has invoked the rebuttable presumption that 35 USC 112, 6th paragraph applies in the claim interpretation of the "means for representing an association," corresponding "structure" in the disclosure is not automatically and inherently limited to hardware-inclusive embodiments. It is entirely possible for the corresponding disclosed "means" to cover an embodiment of software alone. Furthermore, use of the word "**system**" does not inherently mean that the claim is directed to a **machine**. Only if at least one of the claimed elements of the system is a

physical part of a device can the system as claimed constitute part of a device or a combination of devices to be a **machine** within the meaning of 101.

9. Claims 24-41 are further rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to a signal directly or indirectly by claiming a machine-readable media and the Specification recites evidence where the computer readable medium is define as a "wave" (such as a carrier wave). In that event, the claims are directed to a form of energy which at present the office feels does not fall into a category of invention. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. §101.

<http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf>

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 11 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The following terms lack antecedent basis in the claims:

- i. Claim 11, "the group of computations".
- ii. Claim 20, "the bound isolates".

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 3, 11-18, 21, and 42-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Czajkowski, G., et al., (JRes: A Resource Accounting Interface for Java, 13th ACM OOPSLA, Vancouver, BC, October 1998, 15 pages).
14. Czajkowski was disclosed in IDS dated 04/12/2004.

15. Regarding claim 1, Czajkowski teaches a computer program product, which when executed performs operations comprising:

encoding an association of a computer resource and a resource management policy for the computer resource (pg 2 col 2 paragraph 2 lines 5-8; wherein resources have limits placed of them, i.e. resource management policy); and

binding one or more encapsulated computations to the encoding (pg 2 col 2 paragraph 2 lines 5-8; wherein threads must adhere to the resource management policy, otherwise callbacks are invoked).

16. Regarding claim 3, Czajkowski teaches that an encapsulated computation has a state independent of other encapsulated computations (pg 2 col 1 paragraph 2 lines 1-3; wherein each thread has separate memory).

17. Regarding claim 11, Czajkowski teaches that binding the group of computations with the encoding comprises indicating to each of the encapsulated computations the encoding (pg 4 col 1 paragraph 2; wherein threads can query resource usage and limit information).

18. Regarding claim 12, Czajkowski teaches that the computer resource includes physical and logical computer resources (abstract and pg 2 col 1 lines 1-8; "heap memory, CPU time" and it is well known in the art to use virtual memory in Java).

19. Regarding claim 13, Czajkowski teaches a method comprising:
encoding an association of a computer resource with a resource management policy for the resource (pg 2 col 2 paragraph 2 lines 5-8; wherein resources have limits placed of them, i.e. resource management policy); and

binding one or more isolates to the encoding, wherein isolates include encapsulated one or more computations with state independent of other computations (pg 2 col 2 paragraph 2 lines 5-8; wherein threads must adhere to the resource management policy, otherwise callbacks are invoked).

20. Regarding claim 14, Czajkowski teaches that the encoding indicates the computer resource (pg 2 col 1 lines 1-8; wherein there is accounting of resources).

21. Regarding claim 15, Czajkowski teaches that the encoding further indicates a set of one or more policy actions corresponding to the resource management policy, wherein execution of the set of policy actions causes a policy decision to be generated for the computer resource (pg 2 col 2 paragraph 2 lines 5-8; wherein threads must adhere to the resource management policy, otherwise callbacks are invoked).

22. Regarding claim 16, Czajkowski teaches that a dispenser isolate retrieves the set of policy actions from the encoding and executes the set of policy actions to invoke a policy imposing isolate (pg 2 col 2 paragraph 2 lines 5-8; wherein it is inherent that a policy imposing thread invokes the "overuse callbacks" when threads do not adhere to the resource management policy).

23. Regarding claim 17, Czajkowski teaches that the encoding also indicates availability of the computer resource (pg 4 col 1 paragraph 2; wherein threads can query resource usage and limit information).

24. Regarding claim 18, Czajkowski teaches that the encoding also indicates a reservation on the computer resource (pg 2 col 1 lines 1-8; wherein memory and CPU time is reserved for use by the threads).
25. Regarding claim 21, Czajkowski teaches indicating the encoding in a registry of resource management policy-computer resource association encodings (pg 2 col 1 lines 1-8; wherein per-thread accounting of resources is performed).
26. Regarding claim 42, Czajkowski teaches an apparatus comprising:
memory (pg 2 col 1 paragraph 2 line 2); and
means for representing an association between a computer resource and a resource management policy and for binding one or more isolates with the representation of the association of the computer resource and the resource management policy, wherein an isolate includes a set of one or more computations with a state independent of other computations (pg 2 col 2 paragraph 2 lines 5-8; wherein resources have limits placed of them, i.e. resource management policy and pg 2 col 2 paragraph 2 lines 5-8; wherein threads must adhere to the resource management policy, otherwise callbacks are invoked, and wherein it is inherent that some means to represent the relationship exists).
27. Regarding claim 43, Czajkowski teaches that the resource management policy comprises one or more policy actions that provide policy decisions to computer

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resource requests (pg 2 col 1 paragraph 2 lines 1-8; wherein resource limits are place on the computer resource requests).

28. Regarding claim 44, Czajkowski teaches that the resource management policy further comprises triggers that gate execution of policy actions (pg 2 col 1 paragraph 2 lines 1-8; wherein "overuse callbacks" are invoked based on the policy of resource limits).

29. Regarding claim 45, Czajkowski teaches means for indicating usage of the computer resource (pg 4 col 1 paragraph 2; wherein threads can query resource usage and limit information).

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

31. Claims 2, 4-10, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czajkowski, G., et al., (JRes: A Resource Accounting Interface for Java, 13th ACM OOPSLA, Vancouver, BC, October 1998, 15 pages) in view of Back et

al. ("processes in KaffeOS: Isolation, Resource Management, and Sharing in Java", 4th OSDI, Sand Diego, CA, 2000, 14 pages).

32. Back et al. was disclosed on IDS dated 04/12/2004.

33. Regarding claim 2, Czajkowski does not teach that the encapsulated computations correspond to a collaborative application.

34. Back teaches that processes can communicate with each other by sharing objects, i.e. collaborate (pg 2, "2. Design Principles"; wherein there is "Direct Sharing between processes").

35. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to teach a collaborative application. As indicated by Back, the sharing or collaboration between processes is an important design goal.

36. Regarding claim 4, Czajkowski and Back do not explicitly teach that encoding the association includes instantiating a resource domain structure, wherein the resource domain structure indicates a computer resource.

37. Back teaches that the use of namespaces in Java allow processes to share or isolate resources (pg 6 "3.2 Namespaces"). It would have been obvious to one of ordinary skill in the art that the using namespaces in Java is equivalent to a resource domain structure since the resources are separated or shared depending on the situation.

38. Regarding claim 5, Czajkowski teaches that the encoding further indicates a set of one or more policy actions for the resource, the set of policy actions corresponding to the resource management policy (pg 2 col 1 lines 1-8; wherein policies, such as resource limits, are set)

39. Regarding claim 6, Czajkowski and Back do not explicitly teach that a policy imposing isolate installs the set of policy actions in the resource domain structure.

40. It is well known in the art that operating systems and runtime environments such as Java have processes that perform resource management. It would have been obvious to one of ordinary skill in the art at the time of the invention that a process or thread that manages resources would impose the management policies.

41. Regarding claim 7, Czajkowski teaches that the resource domain structure also indicates a set of one or more triggers for the resource, wherein the set of triggers correspond to respective ones of the set of policy actions (pg 2 col 1 lines 1-8; wherein "overuse callbacks" are invoked whenever thread resource limits are exceeded).

42. Regarding claim 8, Czajkowski teaches that the resource domain structure also indicates a reservation on the resource (pg 2 col 1 lines 1-8; wherein memory and CPU time is reserved for use by the threads).

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43. Regarding claim 9, Czajkowski teaches that binding the one or more encapsulated computations with the encoding comprises indicating in a registry each of the encapsulated computations and the encoding (pg 2 col 1 lines 1-8; wherein per-thread accounting of resources is performed).

44. Regarding claim 10, Czajkowski and Back do not explicitly teach that a dispenser retrieves the policy actions from the resource domain structure and executes the policy actions to handle a resource request for the resource, wherein the dispenser is an isolate that handles requests for the resource.

45. It is well known in the art that operating systems and runtime environments such as Java have processes that perform resource management. It would have been obvious to one of ordinary skill in the art at the time of the invention that a process or thread that manages resources would impose the management policies.

46. Regarding claim 23, Czajkowski does not teach that the isolates correspond to a collaborative application.

47. Back teaches that processes can communicate with each other by sharing objects, i.e. collaborate (pg 2, "2. Design Principles"; wherein there is "Direct Sharing between processes").

48. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to teach a collaborative application. As indicated by Back, the sharing or collaboration between processes is an important design goal.

49. Claims 19-20, 22, 30-41, are rejected under 35 U.S.C. 103(a) as being unpatentable over Czajkowski, G., et al., (JRes: A Resource Accounting Interface for Java, 13th ACM OOPSLA, Vancouver, BC, October 1998, 15 pages).

50. Regarding claims 19-20, Czajkowski does not explicitly teach that the resource management policy is defined by a policy imposing isolate that installs the resource management policy in the encoding.

51. It is well known in the art that operating systems and runtime environments such as Java have processes that perform resource management. It would have been obvious to one of ordinary skill in the art at the time of the invention that a process or thread that manages resources would impose the management policies.

52. Regarding claim 22, Czajkowski does not teach indicating the computer resource with generic attributes that at least include disposable, revocable, reservable, and bounded.

53. However it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to indicate the computer resource with generic attributes. One would be motivated by the desire to perform resource management more effectively during allocation.

54. Regarding claim 30, Czajkowski teaches a computer program product encoded on one or more machine-readable media, wherein the computer program product, when executed, performs operations comprising:

binding of encapsulated computations with resource domain structures, each of the resource domain structures representing an association between a computer resource and a resource management policy (pg 2 col 2 paragraph 2 lines 5-8; wherein resources have limits placed of them, i.e. resource management policy and pg 2 col 2 paragraph 2 lines 5-8; wherein threads must adhere to the resource management policy, otherwise callbacks are invoked)

55. Czajkowski differs from the claimed invention for not teaching preventing binding of encapsulated computations with resource domain structures that indicate the same computer resources and allowing binding of computations with resource domain structures that indicate different computer resources.

56. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to prevent the binding of computations to resource domain structures and allowing bindings with resource domain structures that indicate different computer resources. It is well known in the art to perform load balancing of resources. One would be motivated by the desire to load balance the computations.

57. Regarding claim 31, Czajkowski does not teach that the resource domain structures identify their resource domain and indicate resources and associated resource management policies.

58. Czajkowski does teach that the usage of resources and associated resource management policies (pg 2 col 2 paragraph 2 lines 5-8; wherein threads must adhere to the resource management policy, otherwise callbacks are invoked). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to allow resource domains structures to identify their resource domain and indicate resources and associated resource management policies. One would be motivated by the desire to retrieve such information.

59. Regarding claim 32, Czajkowski does not teach that each of the resource domain structures indicate generic attributes of their computer resource that at least include disposable, revocable, reservable, and bounded.

60. However it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to indicate the computer resource with generic attributes. One would be motivated by the desire to perform resource management more effectively during allocation.

61. Regarding claim 33, Czajkowski teaches that the resource domain structures indicate usage of their computer resource (pg 4 col 1 paragraph 2; wherein threads can query resource usage and limit information).

62. Regarding claim 34, Czajkowski teaches that the resource domain structures indicate reservations on their corresponding computer resource (pg 2 col 1 lines 1-8; wherein memory and CPU time is reserved for use by the threads).

63. Regarding claim 35, Czajkowski teaches a computer program product encoded on one or more machine-readable media, wherein the computer program product comprises:

a resource domain that provides for associating a computer resource with a resource management policy and for binding a set of one or more isolates with an instantiation of a resource domain defined with the resource domain class definition, wherein each of the isolates include a set of one or more encapsulated computations with state independent of other isolates (pg 2 col 2 paragraph 2 lines 5-8; wherein resources have limits placed of them, i.e. resource management policy and pg 2 col 1 paragraph 2 lines 1-3; wherein each thread has separate memory).

64. Czajkowski does not explicitly teach a resource domain class definition. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Czajkowski to include a class definition. It is well known in the art that objects are instantiated using class definitions. One would be motivated by the desire to create a class definition for a resource domain in order to create it.

65. Regarding claim 36, Czajkowski teaches that the resource domain class definition provides a routine for determining current usage corresponding to an instance

of the resource domain class (pg 4 col 1 paragraph 2; wherein threads can query resource usage and limit information).

66. Regarding claim 37, Czajkowski teaches one or more routines for unconsuming computer resources (wherein it is inherent that Java includes method for garbage collection).

67. Regarding claim 38, Czajkowski teaches one or more routines for attempting to consume a given amount of a computer resource, with the possibility of success or failure (pg 3 col 2 paragraph 2).

68. Regarding claim 39, Czajkowski teaches one or more routines for indicating computations bound to a given resource domain class instance (pg 3 col 2 paragraph 4).

69. Regarding claim 40, Czajkowski does not teach a sequence of instructions to regulate association of computations with instances of the resource domain class, wherein each instance of the resource domain class indicates different resources.

70. It is well known in the art that Java is an object-orientated program that uses class definitions to construct multiple instances of an object. It would have been obvious to one of ordinary skill in the art at the time of the invention to include that each instance of the resource domain class indicates a different resource.

71. Regarding claim 41, Czajkowski teaches a sequence of instructions to associate resource domain class instances with dispensers that handle resource requests separately from implementation of the resource (pg 3 col 2 paragraph 1; wherein JRes is separate from the resource).

72. Claims 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karch (US Pat No. 7,096,219).

73. Regarding claim 24, Karch does not teach a data structure encoded on one or more machine-readable media, the data structure comprising:

a first field to indicate a computer resource; a second field to indicate a resource management policy; and a third field to indicate availability of the computer resource.

74. Karch does teach using a resource usage analysis tool to perform reporting on resources, availability, and policies (col 4 lines 5-12). It would have been obvious to one of ordinary skill in the art at the time of the invention that Karch would also include a data structure to include all the fields. One would be motivated by the desire to allow for simplified reporting as provided by Karch (col 4 lines 17-20).

75. Regarding claim 25, Karch does not teach comprising a fourth field to indicate an identifier to identify an association between a resource indicated in the first field and a resource management policy indicated in the second field.

76. Karch does teach building aggregate tables and the addition of indexes can be performed (col 4 lines 17-20). It would have been obvious to one of ordinary skill to modify Karch to include a forth field to identify associations. One would be motivated to try to include such as association since it leads to predictable results.

77. Regarding claim 26, Karch does not teach further comprising a fourth field to indicate computer resource usage by a set of one or more encapsulated computations bound to the data structure.

78. Karch does teach the capability to report resource usage (col 4 lines 5-12). It would have been obvious to one of ordinary skill to modify Karch to include a fourth field to indicate computer usage. One would be motivated by the desire to track using resource usage on a per thread basis.

79. Regarding claim 27, Karch does not teach that the first field indicates a computer resource's attributes.

80. It would have been obvious to one of ordinary skill to modify Karch to uniquely identify each resource. It is well known in the art that attributes identify resources.

81. Regarding claim 28, Karch does not teach that the computer resource's attributes at least include disposable, revocable, reservable, and bounded.

82. However it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Karch to indicate the computer resource with generic attributes. One would be motivated by the desire to perform resource management more effectively during allocation.

83. Regarding claim 29, Karch does not teach further comprising a fourth field to indicate a reservation of the computer resource.

84. Karch does teach the capability to report resource usage (col 4 lines 5-12). It would have been obvious to one of ordinary skill to modify Karch to include a fourth field to indicate computer usage or reservation. One would be motivated by the desire to track using resource usage on a per thread basis.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC C. WAI whose telephone number is (571)270-1012. The examiner can normally be reached on Mon-Fri, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric C Wai/
Examiner, Art Unit 2195

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195